



THE CHINESE UNIVERSITY OF HONG KONG
Institute of Network Coding
and
Department of Information Engineering
Seminar



On the Capacity of Noncoherent Network Coding

by

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Time : 2:30 - 3:30 pm

**Venue : Room 833, Ho Sin Hang Engineering Building
The Chinese University of Hong Kong**

Abstract

The standard approach to random linear network coding involves transmission of packet headers (coding vectors) that are used to record the particular linear combination of the components of the message present in each received packet.

As an alternative approach, the idea of non-coherent network coding proposed by koetter and kschischang in their work "Coding for Errors and Erasures in Random Network Coding" to formulate a coding theory in the context of a "non-coherent" or "channel oblivious" transmission model for random linear network coding.

In this talk, we will focus on characterizing the capacity of the non-coherent network coding scenario. To this end we propose a matrix channel model and will show that coding over subspaces is in fact an optimal coding scheme. Then we show that in terms of optimality of communication rate, we do not lose much when we use "coding vectors" instead of coding over subspaces if the field size is large. Later on, motivated by the sensor network applications, we will investigate the rate region of two sources non-coherent network coding multiple access channel.

Biography

Mahdi Jafari Siavoshani received the Bachelor degree in Electrical Engineering with a minor in Applied Physics at Sharif University of Technology, Tehran, Iran, in 2005. He was awarded an Excellency scholarship from EPFL, Switzerland, to study a master degree in Communication System finished in 2007. He is currently a PhD student at the same university. His research interests include network coding, coding and information theory, secrecy, and wireless communications.

****ALL ARE WELCOME ****